

CLAIMS

1. A method for dissolving urea, comprising:

providing a mixing container;

depositing a predetermined amount of urea and a predetermined amount of water into said mixing container to yield a predetermined urea/water concentration;

mixing said urea and said water to form a mixture;

monitoring the temperature of the mixture;

allowing the mixture to stand until the temperature of the mixture reaches a predetermined temperature; and

thereafter, resuming mixing of the mixture until the urea completely dissolves in the water.

2. The method according to claim 1 wherein the predetermined urea/water concentration is about 50/50 wt/wt.

3. The method according to claim 1 wherein the predetermined amount of urea that is in the predetermined urea/water concentration does not exceed 50% of the total

weight of the predetermined urea/water concentration.

4. The method according to claim 1 further including maintaining the temperature of the mixture in the mixing container at the predetermined temperature.

5. The method according to claim 1 wherein the predetermined temperature is between about 19°C and 24°C.

6. The method according to claim 1 wherein the predetermined temperature is about 23°C.

7. A method for dissolving urea, comprising:

providing a mixing container;

depositing an amount of urea into said mixing container;

depositing an amount of water into said mixing chamber, the amount of water being equal to the amount of urea to yield a urea/water concentration of about 50/50 wt/wt;

mixing said urea and said water to form a mixture;

monitoring the temperature of the mixture;

1 allowing the mixture to stand until the temperature of the
2 mixture reaches a predetermined temperature; and
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4 thereafter, resuming mixing of the mixture until the urea
5 completely dissolves in the water.
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7 8. An apparatus for dissolving urea, comprising:
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9 a mixing container;
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11 a urea dispensing device for depositing a predetermined amount
12 of urea into said mixing container;
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14 a water dispensing device for depositing a predetermined
15 amount of water into said mixing container;
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17 a temperature sensor to measure the temperature of mixture
18 within said mixing container;
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20 a temperature control system for maintaining the temperature
21 of the mixture at a predetermined temperature;
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23 a control system to control (i) said urea and water dispensing
24 devices so as to deposit predetermined amounts of water
25 and urea into said mixing container to form a

predetermined urea/water concentration, (ii) said mixing container to mix the urea and the water to form a mixture, (iii) said mixing container to cease mixing to allow the mixture to stand for a predetermined amount of time, (iv) said sensor to provide data representing the temperature of the mixture, (v) said temperature control system to maintain the temperature of the mixture at a predetermined temperature, and (vi) said mixing container to resume mixing of the mixture when the temperature of the mixture reaches a predetermined temperature and continue such mixing until the urea completely dissolves in the water to form a solution.

9. The apparatus according to claim 8 wherein said control system is configured to control the said urea and water dispensing devices to deposit predetermined amounts of urea and water such that said predetermined urea/water concentration is about 50/50 wt/wt.

10. The apparatus according to claim 8 wherein said control system is configured to control the said urea and water dispensing devices to deposit predetermined amounts of urea and water into said mixing container such that the predetermined amount of urea does not exceed 50% of the total weight of the predetermined urea/water concentration.

1 11. The apparatus according to claim 8 further comprising an
2 enclosed room in which is located said urea and water
3 dispensing devices, said mixing container and said temperature
4 sensor, and wherein said control system and said temperature
5 control system are located outside of said enclosed room.

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7 12. The apparatus according to claim 8 wherein said water
8 and urea dispensing devices and said mixing container have
9 electrically controlled outlet valves that are in electrical
10 signal communication with said control system.

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12 13. The apparatus according to claim 8 wherein said control
13 system comprises a computer.

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15 14. The apparatus according to claim 13 wherein said
16 computer is programmed to control said mixing container to
17 resume mixing when the temperature of the mixture is about
18 23°C.